

Fact Sheet:
TRICARE Prime Risk Adjustment Study

Background:

- Risk adjustment models collapse 15K+ diagnosis codes smaller, more coherent, sets of clinical categories and creates an individual illness profile. This enables managers to predict health care costs *for individuals* from their prior diagnoses and demographics, and to compare health outcomes among groups of beneficiaries.
- Our goal was to determine how well commercial risk-adjustment models predict next year's costs in the TRICARE Prime population. We compared four models (ACG, CDPS, CRG and DCG) with each other, with actual costs, and within policy-relevant subgroups.

Data:

- Enrollment and claims data (including diagnoses) for 2.3 TRICARE Prime enrollees who were under the age of 65 and continuously enrolled during FY2001-2002 and residing in the continental US, Hawaii or Alaska.

Descriptive Results:

- When considering global measures of predictive accuracy, each of the models performs well. The DCG model slightly outperforms the others, and all do much better than a simple age and sex adjusted prediction.
- In comparing groups defined by demographic and service characteristics, the CRG models predictions were most accurate, although again the differences among models were small.
- We considered nine different diseases/conditions, ranging from asthma and osteoarthritis to chronic renal failure and congestive heart failure. All models predicted costs that were reasonably close to actual costs for most conditions, with the exception of chronic renal failure, and all came much closer than a simple age/sex model.
- When considering how well these models predict high cost, low cost and mid-range cost cases the DCG model outperforms the others overall, and in most specific cost areas. Only when considering the high middle range of costs (51-80th percentile, averaging \$1700) is the DCG model outperformed by the CDPS model.

Conclusion:

- The four risk adjustment models all performed well.
- It is difficult to say which model performed best, as there is no one perfect test for model fit. All four models properly "priced" sicker subgroups. Decisions about which risk adjustment model to use depend on what criteria are most important.
- Ideally, a model used for resource allocation, or to monitor provider quality or efficiency, would adjust for differences in medical risk, but not, for example, for inefficient practice patterns.
 - If a part of the delivery system is inefficient, a good model will reveal this by producing a predictive ratios of less than 1.0 for patients treated in that part of the system.
 - If the goal is budget planning, to make good estimates of what resources are used and how much money is going to be spent within various parts of the system next year, then the preferred model would adjust for both medical risk and past patterns of care or cost, and have predictive ratios closer to 1.0 within managerial units.
- In addition to model performance, other important decision factors include; ease of use, cost and availability, options for handling imperfect data, the extent to which the model developers continue to regularly update the software, and the types of outputs that are readily available without special programming.